

DRAFT - 09/20/2010

WHAT IS CLAIMED IS:

1. A data management system which has a plurality of servers connected through a network and transfers data managed by each server in accordance with a request  
5 from a terminal connected to the server, wherein each server comprises

recording means for recording the number of times of transfer of data managed by the server, which is requested from the terminal through another server, in  
10 association with the other server and the data, and copy means for copying the data to the other server for which the number of times exceeds a predetermined number.

2. The system according to claim 1, wherein each  
15 server further comprises

means for recording an index of the data managed by the server, and

means for updating the index when the data is copied.

20 3. The system according to claim 1, wherein the servers are hierarchically constructed on the network, and

said recording means of each server records the number of times related to a server on a lower side of  
25 the server.

4. The system according to claim 1, wherein each server further comprises means for deleting the data in

the server after the data is copied by said copy means.

5. The system according to claim 1, wherein the data  
is document data.

6. The system according to claim 1, wherein the  
5 server is a server group formed from a data server  
which stores the data, and an index server which stores  
an index of the data.

7. A server which is connected to another server  
through a network and transfers data managed by the  
10 server in accordance with a request from a terminal  
connected to the other server, comprising:

recording means for recording the number of times  
of transfer of data managed by the server, which is  
requested from the terminal through the other server,  
15 in association with the other server and the data; and  
copy means for copying the data to the other  
server for which the number of times exceeds a  
predetermined number.

8. A data management method of, for a plurality of  
20 servers connected through a network, transferring data  
managed by each server in accordance with a request  
from a terminal connected to the server, comprising:

the recording step of, in each server, recording  
the number of times of transfer of data managed by the  
25 server, which is requested from the terminal through  
another server, in association with the other server  
and the data; and

the copy step of copying the data to the other server for which the number of times exceeds a predetermined number.

9. The method according to claim 8, further comprising, in each server,

the step of recording an index of the data managed by the server, and

the step of updating the index when the data is copied.

10 10. The method according to claim 8, wherein the servers are hierarchically constructed on the network, and

in the recording step in each server, the number of times related to a server on a lower side of the server is recorded.

11. The method according to claim 8, further comprising, in each server, the step of deleting the data in the server after the data is copied in the copy step.

20 12. The method according to claim 8, wherein the data is document data.

13. The method according to claim 8, wherein the server is a server group formed from a data server which stores the data, and an index server which stores 25 an index of the data.

14. A program for causing a computer, which is connected to another server through a network and

transfers data managed by the computer in accordance with a request from a terminal connected to the other server, to function as:

recording means for recording the number of times  
5 of transfer of data managed by the server, which is requested from the terminal through the other server, in association with the other server and the data; and  
copy means for copying the data to the other  
server for which the number of times exceeds a  
10 predetermined number.

15. A data management system which has a plurality of servers connected through a network and transfers data managed by each server in accordance with a request from a terminal connected to the server, wherein  
the data is managed in an object format,  
the object contains the data, a management method,  
and management data,  
each server comprises means for executing  
processing defined in the management method, and  
20 the management method defines  
processing of recording the number of times of transfer of data managed by the server, which is requested from the terminal through another server, as the management data in association with the other server and the data, and  
processing of copying the object of the data to the other server for which the number of times exceeds

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a predetermined number.

16. The system according to claim 15, wherein the management method defines

processing of, when the data managed by the server is updated, specifying the server at a copy destination of the object of the data, and processing of instructing the specified server at the copy destination to update the data.

17. The system according to claim 15, wherein the management method defines

processing of specifying the server at a copy source of the object managed by the server, processing of acquiring the object from the specified server at the copy source,

15 processing of determining whether the data of the acquired object is updated, and

processing of, upon determining that the data is updated, updating the data of the object managed by the server on the basis of the data of the object acquired from the server at the copy source.

18. The system according to claim 15, wherein the servers have a hierarchical relationship, and the method defines

processing of specifying the object of the data for which the number of times is smaller than the predetermined number, and

processing of moving the specified object to an

upper server.

19. A server which is connected to another server through a network and transfers data managed by the server in accordance with a request from a terminal  
5 connected to the other server, wherein
  - the data is managed in an object format,
  - the object contains the data, a management method, and management data,
  - the server comprises means for executing processing defined in the management method, and
  - the management method defines processing of recording the number of times of transfer of data managed by the server, which is requested from the terminal through another server, as
  - 15 the management data in association with the other server and the data, and
  - processing of copying the object of the data to the other server for which the number of times exceeds a predetermined number.
20. 20. A data management method of, for a plurality of servers connected through a network, transferring data managed by each server in accordance with a request from a terminal connected to the server, wherein:
  - the data is managed in an object format,
  - 25 the object contains the data, a management method, and management data,
  - the data management method comprises the step of

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executing processing defined in the management method,  
and

the management method defines

processing of recording the number of times of

5 transfer of data managed by the server, which is  
requested from the terminal through another server, as  
the management data in association with the other  
server and the data, and

processing of copying the object of the data to

10 the other server for which the number of times exceeds  
a predetermined number.

21. A data management system which has a plurality of  
servers connected through a network and having a  
hierarchical relationship and transfers data managed by  
15 each server in accordance with a request from a  
terminal connected to the server, wherein

the terminal is assigned to one of lowermost  
servers, and

each server comprises

20 specifying means for, when transfer of the data  
managed by the server to the terminal is requested,  
specifying another server present between the server  
and the terminal,

recording means for recording the number of times

25 of transfer of data managed by the server in  
association with the specified other server and the  
data, and

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copy means for copying the data to the other server for which the number of times exceeds a predetermined number.

22. A data management method of, for a plurality of servers connected through a network and having a hierarchical relationship, transferring data managed by each server in accordance with a request from a terminal connected to the server, wherein

the terminal is assigned to one of lowermost servers, and

the method comprises, for each server, the specifying step of, when transfer of the data managed by the server to the terminal is requested, specifying another server present between the server and the terminal,

the recording step of recording the number of times of transfer of data managed by the server in association with the specified other server and the data, and

the copy step of copying the data to the other server for which the number of times exceeds a predetermined number.

23. A server which is connected to a plurality of servers through a network, has a hierarchical relationship with respect to the plurality of servers, and transfers to a terminal data managed by the server in accordance with a request from the terminal, wherein

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the terminal is assigned to one of lowermost servers, and

the server comprises

specifying means for, when transfer of the data

5 managed by the server to the terminal is requested, specifying another server present between the server and the terminal,

recording means for recording the number of times of transfer of data managed by the server in

10 association with the specified other server and the data, and

copy means for copying the data to the other server for which the number of times exceeds a predetermined number.

15 24. A program executed by a server which is connected to a plurality of servers through a network, has a hierarchical relationship with respect to the plurality of servers, and transfers to a terminal data managed by the server in accordance with a request from the

20 terminal, wherein

the terminal is assigned to one of lowermost servers, and

the program causes the server to function as

specifying means for, when transfer of the data

25 managed by the server to the terminal is requested, specifying another server present between the server and the terminal,

recording means for recording the number of times of transfer of data managed by the server in association with the specified other server and the data, and

5 copy means for copying the data to the other server for which the number of times exceeds a predetermined number.

25. A data management system which has a plurality of servers connected through a network and transfers data  
10 managed by each server in accordance with a request from a terminal connected to the server, wherein each server comprises

recording means for recording log information containing at least information related to the number  
15 of times of transfer of the data managed by the server, which is requested from the terminal through another server, and

means for copying or moving the data managed by the server to the other server on the basis of the log  
20 information.

26. The system according to claim 25, wherein the log information contains at least one of information of the number of times of request per unit time for data request from the terminal through the other server,  
25 information of a size of the data transferred to the terminal, information related to a load on the server, information of a degree of margin of the server, and

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information related to a load or a degree of margin of the entire network.

27. A server used in a data management system which has a plurality of servers connected through a network  
5 and transfers data managed by each server in accordance with a request from a terminal connected to the server, comprising:

recording means for recording log information containing at least information related to the number  
10 of times of transfer of the data managed by the server, which is requested from the terminal through another server; and

means for copying or moving the data managed by the server to the other server on the basis of the log  
15 information.

28. A data management method in a system which has a plurality of servers connected through a network and transfers data managed by each server in accordance with a request from a terminal connected to the server,  
20 comprising:

the recording step of, in each server, recording log information containing at least information related to the number of times of transfer of the data managed by the server, which is requested from the terminal  
25 through another server; and

the step of copying or moving the data managed by the server to the other server on the basis of the log

information.

29. A program for causing a server used in a data management system, which has a plurality of servers connected through a network and transfers data managed by each server in accordance with a request from a terminal connected to the server, to function as recording means for recording log information containing at least information related to the number of times of transfer of the data managed by the server, which is requested from the terminal through another server, and means for copying or moving the data managed by the server to the other server on the basis of the log information.